

SMUG

BYTES

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SINCLAIR MILWAUKEE USERS GROUP
P.O. Box 101 Butler, WI 53007

THIS MONTH:

- Bill On QL Basic
- The January Meeting.
- The TS2068 Digititizer
- Presidents Message
- And Other Great Things

If any articles are copied
please credit SMUG Bytes

NEXT MEETING DATE: 02/01/89

Send all contributions by the
first day of the month to:

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Editor
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Milwaukee, WI 53225

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*Hardware - G. Kraemer

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*No set date. Call for info.

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* - 251 5291

Meeting on 3rd Wed. of the month

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Meeting on 2nd Sun. of the month

*QL - R. Hilsmann

* - 251 5291

*Meeting date see Spectrum group *

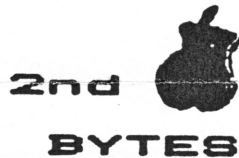
BILL ON QL BASIC

Well I have been trying the QL basic and have run into a few things I would like to pass along. When using an if statement I was comparing a string to a number and this is what I found. Certain keys compared equal to the number. To be specific the UP ARROW compared equal to an eight (8). No other key compared equal except for the 8. To counter this I used the CODE instruction. This resolved the problem.

To use files on your disk/micro drive there are a few different types of "OPEN" commands. The first is "OPEN_NEW". This command will open a new file on a drive. If the file name exists the program will pause with a message

asking if "OK to overwrite", if the file name does not exist the file will be started. This will destroy any pre-existing data.

The next is "OPEN_IN". This instruction will open an existing disk/micro file so it can be read. This is a read only open and the file can not be written. The next instruction is "OPEN_OVER". This open requires an existing file and the file is opened for read and write. I must give credit to Dick Cultice for finding this instruction. This requires an existing file. There is one other open, "OPEN" this will open the file for use but the file must be read to the record to be used. If it is to be changed the read must stop at the record just prior to the desired record.



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TAKE A CHANCE

Well it looks like there will be a dog race track close by. I am looking for a program that will keep statistics on them. I want to make a fortune. I want one for the TS2068. I have the TS1000 handicapper program but would like one for the 2068 as I don't turn on the 1000. I am not sure if dog handicapping is the same as horse but I am sure the differences can be overcome. If anyone has an idea of where I can find such a program please contact me via this newsletter. Thanks.

Sinclair Magazines

I have read in other newsletters that they have gotten the latest issue of Time Designs. I have yet to see the issue and no one else in SMUG has gotten their issue either. Is there a problem with the magazine or just a late publishing? Time Designs is a great magazine for the Sinclair family and I would hate to see it disappear. There are three other magazines that I think should also be mentioned and they are UPDATE! published by UPDATE Magazine, 1317 Stratford Ave., Panama City FL 32404. They publish quarterly and cover all Sinclairs. The second is Quantum Levels. Published by Quantum Levels P.O. Box 64, Jefferson NH 03583. This is an every other month publication or at least they try to hit that goal. The magazine is for the QL only. The third is also for the QL only. It is called QLUI and is published by QLUI Newsletter, 419 Parkwood Dr. E., Orange Park FL 32073. They also publish on a quarterly basis. I recommend any or all of these magazines if you use the Sinclair line of computers. I hope you purchase and don't borrow the mags. as the subscription is what keeps them going. I must say I prefer the three hole stapled format rather than the magazine format as I like to put them in 3

ring binders for easy reference. The magazine format must be handled differently or drilled with a drill press.

NEW QL PROGRAM

We wanted to computerize our election procedure for the club's elections so Neal asked me to write a program. Since we only need the program once a year and there is little call for it I want to turn it over to the public domain. If anybody is interested in a copy please contact me thru SMUG. The program is written for the QL so it is not for the TS2068 but I suppose it can be modified to use it. The program can be had in three ways: I can put it on a 3-1/2 inch disk quad density, on a 5-1/4 inch disk 2S2D or a listing.

A listing will not cost anything. Just ask and I will mail one to you. A disk would cost the disk price plus the mailing cost. The disk cost is .50 for a 5-1/4 or \$1.50 for the 3-1/2 plus the mailing cost? About \$2.00 including a mailer for the disk.

I will include a little write up on how the program will operate and what lines should be changed to customize it for your club.

QL/IBM PC.

Well I don't know if you have seen the latest Sharps catalog or the latest RMG update pages but they are advertising the IBM emulator for the QL. This emulator is a 100 % emulation of the IBM PC.

According to the literature there is no hardware manipulation required. Of course an expanded QL is necessary and the price of the expansion boards have jumped over 100%. The cost is still less than even an IBM clone.

SEKTOR TUTORIAL

by Dr. Lloyd Dreger

Sektor by Mowgli Assor is perhaps one of the most powerful disk utilities ever written for the 2068. Sooner or later everyone gets a messed up disk containing their one and only copy of a program or data which took hours to generate. That is when you use Sektor. But, you've got to know what you are doing or you can really mess up a disk so badly noone can ever straighten it out again. So here are some pointers on its use.

Sektor is quite well documented. Reading this article with the documentation in front of you is highly recommended. Save this article as a supplement to the documentation.

CORRECTING BASIC PROGRAMS: We will talk about a messed up program first. This usually happens when you shorten a program you already have on the disk. I have found it good practice to do such a resave twice. The second MOVE generally assures all the sectors get moved down correctly.

Failing to do this sometimes results in a save to disk that will have a sector containing the same lines found at the end of the previous sector. Trying to load this program is no problem but listing and running it is disaster. You just can't delete the offending line either and rewrite it which would be simple enough.

The easiest is to list the program from the top and find out exactly at what line number the error occurs. Then use Sektor to find it and correct it.

Another very helpful hint. Make a copy of your messed up disk by using the MOVE "b:=a:" command to a clean formatted disk and work with that copy. If you mess up beyond saving you can always make another copy by reformatting and

reMOVing. This only works if the disk is still readable. If you have a READ/WRITE error go to the next section.

First something about the anatomy of a disk. A DSDD (double sided, double density) disk in Aerco format consists of 40 tracks of 10 sectors each per side. Each track is 5120 bytes long and thus each sector contains 512 bytes. To read a full track in Sektor requires 10 different loads of a sector at a time. There is no sector 0. Each screen of Sektor is only 128 bytes long so you have to page through the 4 pages (Caps Shifted number) to see the whole sector.

To find out where a program is on the disk you need to read the header in the directory. Track 00, Sector 01, Side 00 contains the Disk header information which we will talk about later. Track 00, Sector 02, Side 00 starts the program header listings. Load it by using the R command and answering the questions for the track, sector and side. You get a listing of all the numbers on the left side of the screen in HEX code and the printable ASCII values on the right. Each of these headers is 32 bytes long (4 lines on the left) and consists of the following format:

1st byte--file type: 0 = BAS.
3 = BIN ect.
next 10 bytes--file name padded with blanks if necessary.
next 2 bytes--file or total program length.
next 2 bytes--starting address (or line number if BASIC).
next 2 bytes--Program length (start of VARS in basic).

Then what we are looking for--a listing of the track numbers in sequence (in Hex). When you find the program you want by paging through the directory until you find the name, copy these down

remembering that they run 01 to 09 and then 0A, 0B, 0C, 0D, 0E, 0F, before you get to 20 which is actually track 16. Tracks on side 0 go from 00 to 27 HEX, on side 1, from 80 to B9 HEX. This is confusing because the READ command needs decimal numbers, not HEX.

If you are advanced enough to be writing in code or saving data tables as BIN files you have no trouble interpreting the data in a sector. Only BASIC gives us a problem as we have to know the anatomy of a Basic line. To the uninitiated, and for the rest of us a review is in order. Each line consists of a lot of overhead bytes in the following format:

2 bytes--line number in high byte/low byte format even if the first byte is zero. 01 02 is line 258--- $256 \times 1 + 2$.

Next 2 bytes line length to the ENTER at the end of the line starting the count at the byte after these two. This is in the format of low byte/high byte, the high byte is always the integer of the line length divided by 256. The low byte is the remainder of the length after this.

Now, remember that every number is "slugged". That means that after the ASCII codes (Consult Appendix B of your User Manual) for a number will appear an 0E (HEX) and 5 additional bytes which never appear on a screen listing of the program. These slug bytes count in the line length. If the number happens to be an integer many of these slug numbers will be 00. DATA lines containing a lot of numbers can be exceedingly long. Finally, the line ends with an 0D--the enter code.

Using this format we can page through the program sector by sector and track by track. Here we can save some time by taking into account about where in the program we found the problem. Generally, its going to be at the boundary between tracks.

Once we find the errant line, we have to correct it. Do not try to slug numbers and other fancy things. The simplest is to lengthen the length of the errant line to include all the garbage and end on the ENTER of that line. This is usually on the next track as it would be very unlikely that a line ends with a track but carries over to the next track. Thus, some careful counting is in order. A hint, don't worry about 2 lines having the same line number, you can delete one of them when you get back to Basic. You will notice that Sektor tells you what byte number the cursor is on. This helps in counting if you remember that Sektor doesn't use zero as a byte number.

When you think you have the right line length, do the division into a high and low byte by dividing by 256 and use Sektor to rewrite those bytes and then WRITE (W) them back to the appropriate sector of the disk. Now, quit Sektor and load the program and list the problem line. If you did it properly you can edit out the line with the garbage and any duplicate lines--the first duplicate line number goes. If you counted wrong, it will not edit out. Your line length count is off and its back to Sektor to try again. See what I mean by working with a copy?

READ/WRITE ERROR: If you don't even get a directory, it means that the directory is messed up. This usually occurs when rewriting a program or data file to the disk. The DOS has to erase the allocated tracks and fails to reallocate them when rewriting the program/data. We are talking of Track 00, sector 02, side 00, bytes 1 to 32 which are the allocation bytes, i.e., those tracks used--the first 4 lines of Sector 2 on screen 1.

A freshly formatted disk will contain a 80 in the first byte with the rest being zeros indicating a directory exists on track 0.

In binary that is,

1 0 0 0 0 0 0 0. (80)

When track 1 is used it turns to:

1 1 0 0 0 0 0 0. (C0)

When track 2 is used it turns to:

1 1 1 0 0 0 0 0. (E0)

The numbers behind the binary are the HEX equivalents of the binary numbers. As one can see, each track used turns on another bit. Thus, each byte can handle the allocation of 8 tracks.

Tracks are allocated in ascending order. However, holes may exist if you delete a program. Go through the entire directory listing and see which tracks are used for each program on the disk.

Here you have to fool Sektor as it also doesn't like to read an unreadable disk. Telling it to read Track 00, Sector 02, side 00 is going to give you the same READ/WRITE error. Merely tell it to GO TO 12 and viola, the track lists. Page through the sector listing the tracks used. Remember the Aerco system assigns by tracks not sectors. Once having this list, work out the bits that are supposed to be on in the first several bytes of track 00, sector 02, side 00 and rewrite them accordingly. Then write back to the disk with the W command. When it happened to me the first 3 bytes were FB BF 20 which were supposed to be FF FF 20--notice the the 3rd byte is NOT 80 as I had deleted something.

RETRIEVING ERASED PROGRAMS/FILES:

If you erase a program you didn't intend to erase, DO NOT write anything more to the disk or you overwrite the program tracks. It can be retrieved with difficulty. This requires a lot of searching. What happens when you erase a program?

1. The tracks are dellocated in the first few bytes of track 00, sector 02, side 00. They must be reallocated.

2. The directory listing is removed. There is a hole in the directory where it should go. It must be reconstructed.

What doesn't happen is that the actual program is NOT erased. Thus if we can reallocate tracks and rewrite the header we can undo the erase.

Where do we find the data to reconstruct the header? Another copy exists in the first sector of the first track of the program--without the track numbers. It gives the vital data of program length and overall length. Thus all you have to do is go through the first sectors of each track looking for it. Decoding the bytes at the start of Track 00, Sector 2 will tell you which tracks you may skip. Start by looking at the first unallocated track. You also have to find the other parts of the program if it takes more than 1 track but finding the header will tell you how many tracks to look for. Remember tracks on side 2 are set with an 80 HEX prefix. Write down the necessary data and then go back to track 00, sector 02 or higher and reallocate tracks and rewrite the header in its proper placing writing to disk as you do so.

I hope this takes some of the mystery out of Sektor. A basic understanding of binary and Hex are needed and I hope I have given sufficient explanations of them for the average person to proceed. Both the loss of a program and the READ/WRITE error have happened to me and I deliberately did the accidental erase to see what it would be like. It took a little time retrieving the disk but not nearly as much as trying to redo all the programs on a disk. Of course none of this is necessary if you always make at least 2 copies of everything. Unfortunately, when the programing is going along nicely, who takes the time.

JANUARY MEETING

There were two major item besides the annual elections. This was the increase in club dues. The new dues are \$20 per member but this includes the family. Also it includes mailing the newsletter to you. As the cheapest cost to mail the newsletter, first class, is 25 cents and the next price is 45 cents the dues increase will just cover mailing costs. I have worked the mailing costs out by sheet. Up to 4 sheets for 25 cents. Up to 8 sheets for 45 cents. Now we are also dropping the envelope so we may be able to get one more sheet for the 25 cent price. We don't mind a larger issue but cost of mailing does play a part in the size & content of the newsletter. Another comment on the newsletter is help. I am happy to say that Gordon is helping us by getting SMUG Bytes printed at a very low cost and Esther is going to run the labels necessary to mail the newsletter. Thanks for the help.

The second item was the update of the By-Laws. Lloyd will have an updated version for the next meeting. If you want your own copy show up. Remember the new location is 145th st. and Capitol drive. The Equitable Saving and Loan.

The results of the elections are as follows: President is Neal Schultz, Vice President is Bill Heberlein, Secretary is Lloyd Dreger and Treasurer is Armin (Pancho) Doneis. The new Board Of Directors are Dick Cultice, Rudy Hilsman, Gordon Kraemer and Marty Miller.

The meeting was started at 7:30 pm sharp. Many members came in late but only missed the By-Laws update. So if you are not there at 7:30pm expect to have the meeting in process when you arrive.

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QL Pokes.

I needed to turn on CAPS LOCK in a program and failed. In going thru the Chicago newsletter NITE-TIMES NEWS, June issue, and it contained an article by Butch Weinberg, ON THE QL. The following are the pokes he listed:

POKE_W 163976,255 Caps lock on. I couldn't get it to work with POKE_W but it does work with just POKE. Now I had Toolkit II on and that may make the difference.
POKE_W 163976,0 Caps lock off.
POKE 163891,1 Freeze the screen.
POKE 98403,2 Blank the screen.
POKE 98403,0 Unblanks the screen.
POKE 98403,64 Try it!
POKE 98403,8 Try it!
POKE_L 163900,0 Disable BREAK.

Hope this helps you and thanks again to Butch Weinberg and CATUG.

PRESIDENTS MESSAGE

Well here comes 1989. Bill, Jon and I attended the SMARC Hamfest at Waukesha. We saw Ed P., Pancho, Gordy, Rudy, and Dick. If I missed anyone sorry. Bill found a TS2068 new in the box, Jon got a power supply, switching, and I found a video camera/monitor that reads from the bottom.

Upcomming fests:

LAMARSFEST-Lake County Fairgrounds Grayslake, IL. Sunday, March 13. \$3 at the door.

Madison Swapfest & Computer Fair. Dane County Expo Center Forum Bldg. Madison WI. Sunday April 9. 8am to ? \$3 at the door.

SWAPFEST Cedarburg, Circle B Recreation Center. Hy 60 and County I. Saturday May 6. 8am to 1pm. \$3 at the door.

Thats all for now.

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THE DIGITIZER.

A final item discussed and demo'd was the digitizer. The club will sell digitizer boards. - For one assembled, tested and shipped the cost will be \$49.95 + \$3 shipping and handling. If you only want the bare board it will be \$19.95 + \$3 s&h. The board has a leading edge connector and is ready for a mother board. If you want a feed thru connector, like the AERCO, there is an extra charge of \$5. This digitizer is for the TS2068.

The price includes the hardware and software, on cassette, for the digitizer. The bare board also includes the schematic and parts list.

I want to thank Dick, Gordy and Marty for the work they put into getting the board designed, etched and working. They also got the prices for the parts, the company to assemble and test it, and a company to etch the boards.

Two things about the digitizer: First you can't have anything in

the dock port. Our first attempts had a Kempston interface in the cartridge port and that caused a lot of trouble. The second problem is in the freeware. Currently it won't work with the AERCO disk interface. Dick is working on it but for now AERCO disk can't be used. You must use the (shudder) tape recorder. It still is worth the delay to put your favorite photos into the computer.

If you wish to purchase a board we feel the turnaround will be 6 to 8 weeks. This offer is open to any who want to put video pictures on your TS2068.

We only expect to make a limited number of these boards so if you are interested please send in your order soon. Depending on orders we will order either 50 or 100 boards. We must have the money with your order as it will cost more than the club can afford to have them built on speculation.

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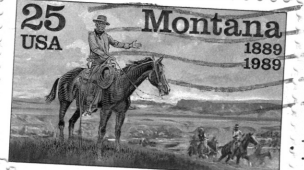
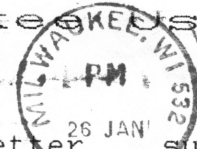
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The Sinclair Milwaukee Users Group

(SMUG)



is a not-for-profit group devoted to serving the interests of those who own, use, educate and/or interested in the Timex/Sinclair family of computers.

Editor and contact person: Bill Heberlein (414) 527-2191

SMUG maintains a gratis exchange of newsletters with approximately 30 Users Groups accross the U.S. Clubs not sending a newsletter, to us, for six months are automatically taken off the list.

Newsletter is available for on to non members or club membership is \$20 per year for a family.

Advertising rates are \$10 for 1/2 page for six months. The add copy may be changed each month but you must supply the copy.

03-89
Donald Lambert
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The next meeting of SMUG will be held on:

Wednesday, February 1, 1989

6pm Set up
6:30 Members Demo's
7pm Board of Direcgors meeting
7:30 Business Meeting
8:30 Lloyds demo 2068 Clock
Bills QL window program
10:30 ?

Location:

Equitable Savings and Loan,
145th and Capitol,
Milwaukee Wisconsin